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PLATE XII. *Streptothrix spiralis*, n. s., magnified 600 diameters: fig. 1. barren; fig. 2. fertile.

XI.—On the present state of our knowledge of the Ornithology of Madagascar. By Dr. G. HARTLAUB of Bremen*.

IT has long been known to zoologists that the island of Madagascar is the site and centre of a very peculiar animal population. Isidore Geoffroy St. Hilaire was inclined to regard it, in respect of its fauna, as a "fourth continent"; and Hombron, in the first volume of the zoological portion of Dumont d'Urville's Expedition to the South Pole, indicates it as one of the creational centres of the African plateau. The distinctness of the Madagascar fauna from that of the African continent is so remarkably great, that of the forty-seven or forty-eight mammalian species which are known to live in a wild state in Madagascar, only one or perhaps two (*Sus larvatus* and *Pteropus rubricollis*?) occur also in Africa. Indeed by far the greater number of them belong to genera which are met with in no other region of the earth's surface. According to Schlegel's researches, the Ophidians of this great island appear to be equally peculiar, inasmuch as it is only the forms of the west coast which exhibit some affinity to those of the opposite shores of Africa. Lastly, the insect-fauna of Madagascar seems, according to Klug and Boisduval, to be rich in original and remarkable forms, although in this department the cases of identity with African species are more frequent, as appears, for instance, from the list of insects of the neighbourhood of Port Natal, &c., appended to Delegorgue's 'Voyage dans l'Afrique Australe.' It is indeed not improbable that a more complete knowledge of the zoology of the East-African regions of Mozambique and Sofala will establish still further relations of affinity between the continental fauna of Africa and the insular one of Madagascar; especially if ever the west coast of this island (which is 350 miles long and is still in great measure a *terra incognita*) shall become more accessible. Our knowledge of the Madagascar fauna, slight and fragmentary as it is, is almost exclusively due to the undaunted and unwearied zeal of the French naturalists, whose field of

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operation however did not in general extend far beyond the narrow limits of two or three French possessions on the east coast. And in truth everything combines to impede, or rather to make almost impossible, for a long time to come, any material extension of this knowledge. A sad experience (to adopt the words of a recent author, Eugene de Froberville) has taught us that a fearful scourge rules over the sea-coast of Madagascar, and that the European who thirsts for knowledge has but slight hope of escaping the fatal attacks of the coast-fever, which makes the island equally inaccessible to the peaceable researches of science and to the invasions of war. Beyond this pestiferous coast-line, the traveller has to encounter a suspicious and bloodthirsty government which takes every means to resist his progress. All efforts to overcome these constant and powerful obstacles have hitherto been ineffectual; travellers the most highly endowed in mind and body have been defeated by them, and as Froberville well observes, the Marsden or Raffles of Madagascar is as yet unborn.

In the hope of conferring a service upon ornithologists, we here endeavour to collect together all that is known on the very peculiar and interesting bird-fauna of the greatest island of East Africa. The oldest information on the birds of Madagascar occurs in Flacourt's 'Histoire de la grande isle Madagascar,' published at Paris in 1661. The 40th chapter of this, in many respects valuable, work contains a list of nearly 60 species of birds which inhabit that island. Unfortunately however we learn little more of them than their Madagascar names. Some of them are indeed described in a manner which, though short, is recognizable, others however not at all, or in a way which makes all identification impossible. Among the very small figures in the copper plates may be recognized certain South African species, as the Cape penguin, and, very evidently, *Grus pavonia*. Under the head of "Night Birds" Bats are included. We believe we are able to identify with certainty about 16 species of Flacourt's list, and we can only estimate its scientific value at a very low rate. Our next source of information is on the contrary one of high merit. Brisson describes in his 'Ornithologie' 38 birds from Madagascar, and with that well-known completeness and accuracy which was peculiar to him above all the zoological writers of his day. The greater number of these species were sent by the learned traveller Poivre to Reaumur's collection; a portion of these are still extant in the National Museum of the *Jardin des Plantes*, another portion have apparently been lost, and of some species our knowledge is wholly confined to the Brissonian description. This is the case, among others, with the *Merula madagascariensis aurea*, with *Luscinia madagascariensis*, and

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The famous traveller Dr. Andrew Smith has described several birds of Madagascar in the ‘South African Quarterly Journal,’ as well as in his ‘South African Zoology,’ a work as yet unfinished, and not to be had from the booksellers, though the author has communicated some copies of it to his friends. These birds came to his hands during his long residence at Cape-town, chiefly through the means of the well-known “*naturaliste-voyageur*” Jules Verreaux. On his authority we have introduced *Strix hirsuta* into our catalogue.—In the 3rd volume of the ‘Mémoires de la Société d’Histoire naturelle de Strasbourg,’ Victor Sganzin, an officer stationed in the French settlements of St. Marie and Tintingue on the east coast, has published a treatise on the Birds and Mammals there observed, which is in many respects important and interesting. He gives a list of the French and Madagascar names of about 70 species, adds short, and unfortunately very insufficient, descriptions, and communicates many valuable remarks on their mode of life. We do not deny the utility of this work, although we have been able to extract but little for our present object, as Sganzin in compiling it seems to have been wholly deprived of the requisite literary materials. He refers almost exclusively to Buffon, and endeavours, often with little success, to recognize his birds in the descriptions of that author. The species which he introduces as new must nevertheless be regarded as only nominal, and must be excluded from systematic catalogues, for neither their generic position nor their specific individuality can be established with any certainty from the descriptions which are appended.—At the meeting of the Paris Academy of Sciences on April 9, 1838, I. Geoffroy St. Hilaire read the descriptions of three new and remarkable genera of birds from Madagascar, *Oriolia Bernieri*, *Mesites variegata*, and *Philepitta sericea*. He had previously described two other new

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We will now endeavour to enumerate, as follows, the birds which have been hitherto made known as inhabiting Madagascar.

1. *Haliaëtos vociferoides*, Desm. Rev. Zool. viii. p. 176; Id. Iconogr. Ornith. pl. 7. Possibly "*Aigle brun nuancé de fauve*," Sganz. l. c. p. 21.

2. *Accipiter madagascariensis*, Verreaux; Smith, Afr. Zool. p. 154; List of Specim. Brit. Mus. 1. p. 35.

3. *Accipiter Francesii*, Smith, Afr. Zool. p. 152; List of Specim. Brit. Mus. 1. p. 36.—*Nisus Francesii*, Kaup, Isis, 1847, p. 173.

4. *Melierax canorus* (Thunb.).—Falcon chanteur, *Levaill.* Falco canorus, Thunb. Dissertat. Ups. 1799. F. musicus, Daud. 1800. Astur cantans, Kaup, Isis, 1847, p. 173. Epervier chanteur, Sganz. l. c. p. 19; Denh. Clappert. Trav. Centr. Afr. p. 195.

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12. *Cypselus unicolor*, Catal. Mus. Rivoli, p. 18.

13. *Eurystomus madagascariensis* (auct.).—Rollier de Madag., Buff. E. violaceus, Vieill.; Denh. Clappert. Trav. Centr. Afr. p. 196 (?); Sganz. l. c. p. 29.

14. *Brachypteracias leptosomus* (Less.), 1832.—*Colaris leptosomus*, Less. Illustr. de Zool. pl. 20; Lafresn. Mag. de Zool. 1834, pl. 31. *Chloropygia leptos.*, Swains. Classific. ii. p. 333. Le Pic, Sganz. l. c. p. 35. (Sasang.)

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15. *Atelornis pittoides* (Lafr.), Pucher. Rev. Zool. ix. p. 200.—*Brachypteracias pittoides*, Lafresn. Magas. de Zool. 1834, pl. 32; Desm. Icon. Ornith. Le Pic à tête bleue, Sganz. l. c. p. 34. (Sapacot.)

16. *Atelornis squamigera* (Lafr.), Pucher. Rev. Zool. ix. p. 193.—*Brachypteracias squamigera*, Lafr. Rev. Zool. 1838, p. 224; Desm. Iconogr. Ornith. pl. 39.

17. *Halcyon gularis*, Kuhl.—*Ispida madagascariensis cærulea*, Briss. Orn. iv. p. 496. pl. 38. fig. 2; Pl. enl. 332. *H. ruficollis*, Swains. Alcedo melanoptera, Temm. Tabl. method.

Hugh Cuming collected this species in great numbers in the Philippines. It is also met with in South India, and Mr. Strickland is disposed to regard Brisson's statement of the locality as erroneous, especially as Poivre, who sent the bird, also made collections in the Philippine Islands. (Annals and Mag. of Nat. Hist. xiii. p. 14.)

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19. *Alcedo madagascariensis*, L.—*Ispida madag.*, Briss. Orn. iv. p. 509. pl. 38. fig. 1; Pl. enl. 778. fig. 1. Martin pêcheur roux, Sganz. l. c. p. 31.

20. *Alcedo vintsioides*, Lafresn. Guér. Mag. de Zool. 1836, pl. 74; Catal. Mus. Rivol. p. 23. Martin pêcheur bleu, Sganz. ib.

21. *Merops superciliosus*, L.—*Apiaster madagascariensis*, Briss. Orn. iv. p. 545. pl. 42. fig. 1; Pl. enl. 259. Grand Guépier, Sganz. l. c. p. 30; Rüpp. Uebers. p. 23.

22. *Merops viridis*, L.—*Apiaster madag. torquatus*, Briss. iv. p. 549. pl. 42. fig. 2; Pl. enl. 740; Rüpp. Uebers. p. 24.

23. *Fregilupus capensis* (Gm.), Less.—La Huppe noire et blanche du Cap d. B. E., Buff. Pl. enl. 697. *Upupa capensis*, Gm., Lath. U. varia, Bodd. U. madagascariensis, Shaw. Tinouch, Flacourt, Madag. p. 166. Mus. Paris., Lugdun. Bowdich records the *Upupa capensis* as occurring at Porto Santo; but this is decidedly erroneous.—*Excursions in Madeira and Porto Santo*, p. 93.

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21. *Merops superciliosus*, L.—*Apiaster madagascariensis*, Briss. Orn. iv. p. 545. pl. 42. fig. 1; Pl. enl. 259. Grand Guépier, Sganz. l. c. p. 30; Rüpp. Uebers. p. 23.

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23. *Fregilupus capensis* (Gm.), Less.—La Huppe noire et blanche du Cap d. B. E., Buff. Pl. enl. 697. *Upupa capensis*, Gm., Lath. U. varia, Bodd. U. madagascariensis, Shaw. Tinouch, Flacourt, Madag. p. 166. Mus. Paris., Lugdun. Bowdich records the *Upupa capensis* as occurring at Porto Santo; but this is decidedly erroneous.—Excursions in Madeira and Porto Santo, p. 93.

24. *Falculia palliata*, I. Geoffr. St. Hilaire, Mag. de Zoologie, 1836, pl. 49. Mus. Paris., Brit., Brem. &c.

25. *Promerops caudacutus*, Vieill.—Le Promerar, *Levaill. Prom. et Guép.* pl. 8 et 9. *Epimachus obscurus*, *Wagl.* To be found in no collection.

26. *Nectarinia angaladiana* (Shaw).—*Certhia madag. viridis*, *Briss. Orn.* iii. p. 641. pl. 33. fig. 4 and 5; *Pl. enl.* 575. fig. 2; *Less. Man.* ii. p. 25. *Cinnyris madagascariensis*, *Q. et Gaim. Astrol.* t. 5. fig. 3.

27. *Nectarinia madagascariensis* (Lath.).—N. Souimanga, *Gm. Certhia madag. violacea*, *Briss. l. c.* p. 368. pl. 32. fig. 2 and 3. Sou-mangha, *Flucourt, Madag.* p. 166; *Less. Man.* ii. p. 24; *Vieill. Ois. dor.* pl. 18.

28. *Zosterops madagascariensis* (auct.).—*Ficedula madag. minor*, *Briss. Orn.* iii. p. 498. pl. 28. fig. 2. Le Cheric, *Buff.*; *Levaill. Afr.* pl. 132; *Sganz. l. c.* p. 27; *Rüpp. Uebers.* p. 57.

29. *Zosterops (?) borbonicus* (Lath.).—*Ficedula borbonica*, *Briss. Orn.* iii. p. 510. pl. 28. fig. 3. Petit Simon de Bourbon, *Buff.*, *Sganz. l. c.* p. 28.

30. *Zosterops olivaceus*, nob.—*Certhia madag. olivacea*, *Briss. Orn.* iii. p. 625. pl. 33. fig. 1; *Pl. enl.* 575. fig. 1. *Certhia olivacea*, auct.

31. *Saxicola sibylla*, auct.—*Rubetra madagasc.*, *Briss. Orn.* iii. p. 439. pl. 24. fig. 4. Le Flitert, *Buff.*, *Sganz. l. c.* p. 27.

32. *Saxicola albospecularis* (Lafresn.), *Magas. de Zool.* 1836, *Ois.* pl. 64, 65.—Merle noir, *Sganz. Ois.* p. 26. Mus. Rivoli.

33. *Sylvia (?) madagascariensis*, auct.—*Luscinia madag.*, *Briss. Orn.* iii. p. 401. pl. 22. fig. 1. In no collection.

34. *Motacilla flaviventris*, *Catal. Mus. Rivoli*, p. 9. Flacourt also mentions a wagtail in Madagascar: *Salaleanacondrats*, "Oiseau qui remue toujours la queue." *Hist. de Mad.* p. 165.

35. *Turdus (?) sauijala*, *Gm.*—*Merula madag. aurea*, *Briss. Orn.* ii. p. 247. t. 24. fig. 2; *Pl. enl.* 539. fig. 2. *Phyllornis jala* (*Bodd.*), *Gray, Gen. of Birds.*

This remarkable bird with a short Pitta-like tail is not found in any collection. The colour reminds one of *Anthochara phrygia*. It is certainly not a *Phyllornis*.

36. *Turdus ourovang*, auct.—*Merula madag. cinerea*, *Briss. ii.* p. 291. pl. 25. fig. 2. *Hypsipetes ourovang*, *Cat. Mus. Rivoli*, p. 6; *Sganz. l. c.* p. 26.

37. *Philepitta sericea*, I. Geoffr. St. Hilaire, Mag. de Zool. 1839, *Ois.* pl. 8; *Desm. Iconogr. Ornith.* pl. 32.

38. *Philepitta Geoffroyi*, *Desm. Icon. Orn.* pl. 33. (Goudot.)

39. *Artamia leucocephala* (L.), *Lafresn. Dict. univ.* ii. p. 166.—*Lanius madag. major viridis*, *Briss. Orn.* ii. p. 193. pl. 19. fig. 2; *Pl. enl.* 374. Mus. Paris.

40. *Artamia rufa* (L.), *Lafr. ibid.*—*Lanius madag. rufus*, *Briss. Orn.* ii. p. 178. pl. 18. fig. 4; *Pl. enl.* 298. fig. 2; *Sganz. l. c.* p. 23. *Schetba rufa*, *Less.* Mus. Paris.

41. *Artamia viridis* (auct.), *Lafr. ib.*—*Lanius madag. minor viri-*

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41. *Artamia viridis* (auct.), *Lafr. ib.*—*Lanius madag. minor viri-*

dis, *Briss.* ii. p. 195. pl. 15. fig. 3; *Pl. enl.* 32. fig. 2; *Sganz. l. c.* p. 23. Mus. Paris, &c.

42. *Oriolia Bernieri*, Geoffr. St. Hilaire, *Mag. de Zool.* 1839, Ois. pl. 4; id. *Rev. Zool.* i. p. 50.

43. *Muscipapa* (?) *madagascariensis*, auct.—*Ficedula madag. major*, *Briss. Orn.* iii. p. 482. t. 24. fig. 2. Le Vira ombé de Mad., *Sonner. Voy. Ind.* i. p. 198. To be found, as far as known, in no collection.

44. *Muscipeta holosericea*, Temm.—*Muscipapa madag. longicauda*, *Briss.* ii. p. 424. pl. 40. fig. 1; *Pl. enl.* 248. fig. 1; *Levaill. Afr.* t. 147. *M. rufa*, *Swains. West. Afr.* ii. p. 60; *Sganz. l. c.* p. 24.

45. *Muscipeta mutata* (L.).—*Muscipapa albicilla longicauda*, and *varia longicauda*, *Briss.* ii. 427. pl. 40. fig. 2 and 3; *Pl. enl.* 428. fig. 2; *Levaill. Afr.* t. 148. *M. bicolor*, *Swains. West. Afr.* ii. p. 60; *Sichetra, Flacourt, Madag.* p. 166.

46. *Muscipeta borbonica* (Gm.).—*Muscipapa borbon. cristata*, *Briss.* ii. p. 420. pl. 39. fig. 5; *Pl. enl.* 573. fig. 1.

47. *Muscipeta pretiosa* (Less.).—*Tchitrea pretiosa*, *Less. Descr. de Mammif. et d'Ois. récemm. découv.* p. 324. "Habite l'île de Mayotte et se trouve à Nossibé."

48. *Cebblepyris cana*, Licht.—*Muscipapa mad. cinerea major*, *Briss.* ii. 389. pl. 37. fig. 1; *Pl. enl.* 541; *Rüpp. Monogr. sp.* 6. *C. madagascariensis*, *Catal. Mus. Rivoli*, p. 5.

49. *Edolius forficatus* (L.).—*Muscipapa mad. nigra major cristata*, *Briss. Orn.* ii. 388. pl. 37. fig. 4; *Pl. enl.* 189.

50. *Lanius madagascariensis*, L.—*L. madag. minor*, *Briss. Orn.* ii. p. 164. pl. 16. fig. 1 and 2; *Pl. enl.* 299. Mus. Paris.

51. *Laniarius bicolor* (L.), Gray.—*Lanius madag. cæruleus*, *Briss.* ii. p. 197. pl. 16. fig. 3; *Pl. enl.* 298. fig. 1; *d'Orb. Dict. univ. Ois. fig.* Mus. Par. Lugd.

52. *Vanga curvirostris* (Gm.), Vieill.—*Collurio madag.*, *Briss. Orn.* ii. p. 191. pl. 19. fig. 1; *Pl. enl.* 228.

53. *Corvus albicollis*, Lath.—*Coach, Flac. Madag.* p. 166. *Corbeau de Madagascar*, *Sganz. l. c.* p. 29. "*Corvus dauricus*," *Desjard. Proceed. Zool. Soc.* 1831, p. 45.

54. *Saroglossa* (?) *madagascariensis* (auct.), Gray.—*Merula madag.*, *Briss. Orn.* ii. p. 274. pl. 25. fig. 1; *Pl. enl.* 557. fig. 1; *Catal. Mus. Rivoli*, p. 16; *Sganz. l. c.* p. 26. *Turdus madagascarius*, *Herm. Tab. Affin. Anim.* p. 210.

55. *Ploceus madagascariensis* (auct.), Gr.—*Cardinalis mad.*, *Briss.* iii. p. 112. pl. 6. fig. 2. Le Fondi, *Buff. Foulimene, Flac. Madag.* p. 164; *Sganz. l. c.* p. 28. Also in Ile de France, *Milbert.*

56. *Ploceus nelicourvi* (Scop.), *Sonner. Voy. Ind.* pl. 22.—*Loxia pensilis*, *Gmel.*

57. *Spermophaga margaritata*, Strickl. *Ann. and Mag.* xiii. p. 418. pl. 10. *Desm. Iconogr. Ornith. livr. xi.* pl. 64. *Fringilla Verreauxii*, *Pr. d'Essling, MS.* The specimen which served as a model to Desmurs's beautiful plate was procured by Jules Verreaux in 1832, in a wood near Cape Town. It afterwards came into the collection of the Duc de Rivoli, and is now, with the other treasures of that noble museum, in the possession of Dr. Thomas Wilson of Philadelphia. The

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58. *Pyrrhula nana*, Pucher. Rev. Zool. viii. p. 52; id. Guér. Magde Zool. 1845, Ois. pl. 58.

59. *Euryceros Prevostii*, Less. Cent. Zool. pl. 74; id. Illustr. de Zool. pl. 13; id. Bullet. des Sc. nat. xxv. p. 243. Siket-bé, *Sganz. l. c.* p. 31.

60. *Coracopsis nigra* (L.), Wagl.—*Psittacus madag. niger*, *Briss.* iv. p. 317; *Levaill. Perr.* t. 82. Vaza, *Flac. Mad.* p. 164. *Ps. vaza*, *Shaw.*

61. *Coracopsis mascarina* (Briss.), Wagl.—*Ps. mascarinus*, *Briss.* iv. 315; *Pl. enl.* 35.

62. *Psittacula cana* (auct.).—*Psittacula madagasc.*, *Briss. Orn.* iv. p. 394. pl. 30. fig. 2; *Pl. enl.* 791. fig. 2. Saravoza, *Flac. Madag.* p. 163. *Psittacus poliocar*, *Forst. ed. Licht.* p. 399.

In Richard Schomburgk's 'Reisen in British Guiana' it is stated at p. 421, part 2, "The falling of small husks from a colossal *Mimosa* betrayed to us the presence of a party of parrots at the top. A shot from one of our attendants brought down two specimens, in which, to my astonishment, I recognized the elegant *Psittacus madagascariensis*, Lath., which was hitherto only supposed to inhabit Madagascar. According to the report of the Indians this delicate bird only comes periodically to the vicinity of Kuamuta, and soon disappears again." We will add nothing to this remarkable statement except a modest? Should it prove authentic, a point which the expected ornithological Appendix by Cabanis, to R. Schomburgk's Journey, will explain,—this unaccountable fact will stand alone in the history of the geographical distribution of the *Psittacidae*.

63. *Leptosomus afer* (Gm.), Vieill.—*Cuculus madagasc. major*, *Briss. Orn.* iv. p. 160. pl. 15. fig. 1 and 2. Le Vouroudriou, *Buff. Pl. enl.* 587. *Cuculus discolor*, *Herm. Tab. Affin. Anim.* p. 186. *L. crombus*, *Less. Compl. à Buff.* vi. p. 418.

64. *Centropus melanorhynchus* (Bodd.), Gr.—*Cuculus madagascariensis*, *Briss. Orn.* iv. 138. pl. 13. fig. 2. *C. tolu*, *auct.*; *Pl. enl.* 295. fig. 1.

65. *Coua gigas* (Bodd.), Gr.—Coucou verdâtre de Madagascar, *Buff. Pl. enl.* 815. *Cuculus madagascariensis*, *Gm.* *Coccyzus virescens*, *Vieill.*

66. *Coua cristata* (L.).—*Cuculus madag. cristatus*, *Briss.* iv. p. 149. pl. 12. fig. 2; *Pl. enl.* 589; *Levaill. Afr.* pl. 207. Conlicou, *Sganz. l. c.* p. 31.

67. *Coua cærulea* (L.).—*Cuculus madag. cæruleus*, *Briss.* iv. p. 156. pl. 13. fig. 1; *Pl. enl.* 295. fig. 2.

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68. *Coua Delalandi* (Temm.), Pl. enl. 440; Ackermann, Note sur le Coua (*Famac-acora*, *Casseur d'escargots*), Rev. Zool. iv. p. 209.
69. *Coua Serriana*, Pucher. Rev. Zool. viii. p. 51; Guér. Mag. de Zool. 1845, Ois. pl. 55.
70. *Coua Reynaudii*, Pucher. Rev. Zool. viii. p. 51; Guér. Mag. de Zool. 1845, Ois. pl. 56. Mus. Rivoli.
71. *Coua ruficeps*, Gray, Gen. of Birds, part 29. fig. pulch.
72. "*Cuculus canorus*," L. "Common in Madagascar." J. Desjard. Proceed. Zoolog. Soc. 1832, pp. 111 and 115.
73. *Columba madagascariensis*, Gm., Levaill. Afr. pl. 266.—*C. phœnicura*, Wagl. *Palumbus madag. cæruleus*, Briss. i. p. 140. pl. 14. fig. 1. Fanou-manghe, Flac. Madag. p. 163; Sganz. l. c. p. 39.
74. *Columba picturata*, Temm. Pl. col. 242.—"Delalande l'a trouvé à Madagascar," Less. Compl. à Buff. viii. p. 50.
75. *Alectrænas Franciæ* (Gm.), Gr.; Levaill. Afr. pl. 276.
76. *Treron australis* (auct.).—*Columba viridis madag.*, Briss. i. p. 142. pl. 14. fig. 2; Pl. enl. iii.; Temm. Pig. t. 3. Vinago nudirostris, Swains.
77. *Turtur malaccensis* (auct.).—*Columba striata*, auct. Petite Tourterelle, Sganz. l. c. p. 40.
78. *Mesites variegata*, I. Geoffr. St. Hilaire, Rev. Zool. i. p. 50; id. Guér. Mag. de Zool. 1839, pl. 5 and 6; Desm. Iconogr. Ornith. pl. 51. Mus. Paris., Vienn.
79. *Mesites unicolor*, Desm. Rev. Zool. viii. p. 176; id. Iconogr. Ornith. pl. 52.
80. *Numida mitrata*, Pall.—Acanga, Flac. Madag. p. 163; Sganz. l. c. p. 37.
81. *Perdix madagascariensis*, Scop.—Grande Caille de Mad., Sonner. Voy. Ind. p. 169. pl. 98. *P. striata*, Gm. Lath.; Tabl. encycl. et méthod. Orn. pl. 92. fig. 2. Mus. Paris., Edin.
82. *Coturnix grisea* (Gm., Lath.), Bonnat. Encycl. méthod. p. 220; Temm. Fig. et Gall. iii. p. 523.—La Caille brun de Madagascar, Sonn. Voy. Ind. ii. p. 171. In no collection.
83. *Ithaginis madagascariensis* (Sc.).—Le Perdrix rouge de Mad., Sonner. Voy. Ind. ii. 169. *Tetrao spadiceus*, Gm.; Gray, Hardw. Illustr. Ind. Zool. ii. pl. 18; Catal. Mus. Rivoli, p. 30. Four specimens from Madagascar.
84. *Turnix nigricollis* (Gm.).—*Coturnix madagasc.*, Briss. Orn. i. p. 252. pl. 24. fig. 2; List of Specim. Birds Brit. Mus. p. 48; Sganz. l. c. p. 38.
85. *Francolinus madagascariensis* (auct.).—Le Francolin de l'île de France, Sonner. Voy. Ind. p. 166. pl. 97. *F. perlatus*, Steph.; Vieill. Galer. pl. 213; Sganz. l. c. p. 37.
86. *Pterocles personatus*, Gould, Zool. of H.M.S. Sulphur, Birds, pl. 30. p. 49; id. Proceed. Zool. Soc. 1843, p. 15. "Abundant in the scrubby groves of *Pandanus* skirting a portion of Majambo Bay."
87. *Glareola Geoffroyi*, Pucher. Rev. Zool. viii. p. 51; Guér. Mag. de Zool. 1845, pl. 57.—*G. ocularis*, Catal. Mus. Rivoli, p. 36.
88. *Numenius madagascariensis*, Briss. Orn. v. p. 321. pl. 28; Pl.

68. *Coua Delalandi* (Temm.), Pl. enl. 440; Ackermann, Note sur le Coua (*Famac-acora*, *Casseur d'escargots*), Rev. Zool. iv. p. 209.
69. *Coua Serriana*, Pucher. Rev. Zool. viii. p. 51; Guér. Mag. de Zool. 1845, Ois. pl. 55.
70. *Coua Reynaudii*, Pucher. Rev. Zool. viii. p. 51; Guér. Mag. de Zool. 1845, Ois. pl. 56. Mus. Rivoli.
71. *Coua ruficeps*, Gray, Gen. of Birds, part 29. fig. pulch.
72. "*Cuculus canorus*," L. "Common in Madagascar." J. Desjard. Proceed. Zoolog. Soc. 1832, pp. 111 and 115.
73. *Columba madagascariensis*, Gm., Levaill. Afr. pl. 266.—*C. phœnicura*, Wagl. *Palumbus madag. cæruleus*, Briss. i. p. 140. pl. 14. fig. 1. Fanou-manghe, Flac. Madag. p. 163; Sganz. l. c. p. 39.
74. *Columba picturata*, Temm. Pl. col. 242.—"Delalande l'a trouvé à Madagascar," Less. Compl. à Buff. viii. p. 50.
75. *Alectrænas Franciæ* (Gm.), Gr.; Levaill. Afr. pl. 276.
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enl. 198; Licht. Doubl. p. 75; List of Specim. Brit. Mus. p. 93.—*Courlis gris*, Sgan. l. c. p. 44. Also in Mauritius according to Desjardins, Proceed. Zool. Soc. i. p. 45.

89. *Anastomus lamelligerus*, Temm.; List of Specim. Brit. Mus. p. 89; Rüpp. System. Uebers. p. 121.

90. *Ibis cristata*, auct.—*Courlis huppé* de Madag., Buff. Pl. enl. 841; id. Ois. viii.; Sgan. l. c. p. 44. *Bostrychia cristata*, Reichb.

91. *Rhynchæa capensis* (L.).—*Becassine* de Madag., Buff. Pl. enl. 922; Desjard. Proceed. Zool. Soc. 1831, pl. 45; Sgan. l. c. p. 43.

92. *Gallinago Bernieri*, Pucher. Rev. Zool. viii. p. 279. Is it the "*Becassine*," Sgan. l. c. p. 43? (Ravarave.)

93. *Parra albinucha*, Is. Geoffr. St. Hilaire, Mag. de Zool. 1832, pl. 6; id. Étud. zoolog. fascic. i. pl. 6.—*P. atricollis*, Swains. Anim. in Menag. p. 334.

94. *Platalea Telfairii*, Vig. Proceed. Zool. Soc. 1831, pl. 41; ib. 1832, p. 111.—*Vourougondrou*, Flac. Madag. p. 164; Sgan. l. c. p. 46; Malh. Rôle des Ois. chez les Anciens, &c. p. 13; also in Mauritius, Catal. Chath. Collect. p. 42.

95. *Ardea alba*, L., Desjard. Proceed. 1832, p. 111. Is it "*Heron Blanc*," Sgan. p. 41?; Encyclop. méthod. p. 1110.

96. *Ardea bubulcus*, Sav.—*Vourougondrou*, Flac. Madag. p. 164; *Delegorg. Voy. Afr. aust.* i. p. 334. "*Heron de Madagascar*," Poiret, *Voy. en Numid. Deutsch. Uebers.* 351; Rüpp. Syst. Uebers. p. 121.

97. *Ardea garzetta*, L., Jules Desjard. Proceed. 1832, p. 111; Lath. Gen. Hist. ix. p. 88.

Sganzin's "*Heron bleu*" may be the *Ardea gularis*, Bosk, which also occurs in Abyssinia and Mozambique.

98. *Scopus umbretta*, L.—*Scopus*, Briss. v. p. 505; Desjard. Proceed. Zool. Soc. 1831, p. 45; Tuckey, *Voy. Zaire*, p. 407; Denh. Clappert. Centr. Afr. p. 202; Rüpp. Syst. Uebers. p. 121; H. Boie, *Briefe aus Ostind.* p. 61; *Deleg. Voy. Afr. aust.* i. 516. *Ardea fusca*, Forst. ed. Licht. p. 47; *Bowdich, Excurs. Mad.* p. 230.

99. *Rallus madagascariensis*, A. Smith, South Afr. Quart. Journ. i. p. 80. *Biensis typicus*, Pucher. Rev. Zool. viii. p. 51; *Desm. Iconogr. ornith.* pl. 24. Is it also *R. madagascariensis*, Desjard. Proceed. 1831, p. 45?

100. *Rallus (Eulabeornis) Cuvieri*, Pucher. Rev. Zool. viii. p. 279.—*R. gularis*, Cuv., Less.; Guér. *Iconogr. Ois.* pl. 58. fig. 1. Rôle de Madag., Sgan. l. c. p. 46. Mus. Paris. Also in Mauritius.

101. *Gallinula kioloides*, Pucher. Rev. Zool. viii. p. 279.

102. *Porphyrio madagascariensis*, Gm.—*Taleva*, Flac. Madag. p. 164. *Taleve* de Madag., Buff. Pl. enl. 810. *P. smaragnotos*, Temm.; Sgan. l. c. p. 44. *Fulica porphyrio*, Forst. ed. Licht. p. 49.

103. *Fulica chloropus*, L., Desjard. Proceed. Zool. Soc. 1831, p. 45; Sgan. l. c. p. 45.

104. *Fulica cristata*, Gm.—*Haretac*, Flac. Madag. p. 164. Grande Foulgue à crête, Buff.; Lath. Gen. Hist. x. pl. 165; Desjard. Proceed. 1831, p. 45; Sgan. l. c. p. 46; Rüpp. System. Uebers. p. 128; Barthélemy, Rev. Zool. iv. p. 307; Malh. Faune ornith. Sicile, p. 198.

enl. 198; Licht. Doubl. p. 75; List of Specim. Brit. Mus. p. 93.—Courlis gris, *Sganz. l. c.* p. 44. Also in Mauritius according to Desjardins, *Proceed. Zool. Soc.* i. p. 45.

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105. *Phanicopterus antiquorum*, Temm.—Sambé, *Flac. Madag.* p. 164. Flamant, *Sganz. l. c.* p. 47.

106. *Nettapus auritus* (Bodd.), Pl. enl. 770.—*Anas madagascariensis*, Gm.; *Sganz.* p. 48. Also in Western Africa, *Catal. Birds Brit. Mus.* iii. p. 128. (Rendall.)

107. *Sarkidiornis regia* (Mol.), Eyton.—*Anas melanotos*, Penn.; *Pl. enl.* 937. Rossangue, *Flac. Madag.* p. 164. “Canard à bosse,” *Sganz.* p. 49; *Denh. Clapp. Centr. Afr.* p. 204; *Delegorg. Voy. Afr. aust.* ii. p. 531; *Rüpp. Syst. Uebers.* p. 136.

Whether this species, which lives in Madagascar, be not rather the *S. africana*, Eyt., remains undecided. We know in fact very little of the ducks of that country. Flacourt names “four *sarcelles*,” Desjardins, “four species of the genus *Anas*,” and the Abbé Rochon mentions six species of ducks. Sganzin has only three.

108. *Podiceps minor*, L., Desjard. *Proceed. Zool. Soc.* 1831, p. 45. A passage in Du Maine, *Voy. à la terre d'Ancaïe*, *Deutsch. Uebers. Spreng. Bibl. Reis.* 46. p. 75, alludes to the occurrence of a second species of *Podiceps*: “Here we procured a bird not so large as a teal with black pointed beak, clear brown head and body, black collar and white belly; the feet seem to go out behind and are divided into little ‘palettes pour nager.’”

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110. *Phaëton phænicurus*, L.

111. *Phaëton flavirostris*, Br.

112. *Procellaria capensis*, L.

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What is *Pelecanus madagascariensis*, Fisch., *National Mus.* at Paris, i. p. 192?

Although, from our slight acquaintance with the interior of Madagascar, the species here enumerated probably form only a minority of the entire ornithology of this great island, yet their number appears to us to be sufficiently large to guide us to certain geographical and zoological results. These tend altogether to confirm that great peculiarity of character in the Madagascar fauna which is also indicated by the other animal classes. Not less than 68 of the 113 species above-mentioned have never yet been discovered either in the African continent or in any other region of the earth. They belong exclusively to the island, and include a number of remarkable forms, distinguished by their colour and structure. The genera *Euryceros*, *Falculia*, *Mesites*, *Oriolia*, *Leptosomus*, *Coua*, *Philepitta*, *Brachypteracias*, *Atelornis*, *Cora-copsis* and *Biensis* are confined to Madagascar; two others, *Fregilupus* and *Alectranas*, extend also to the Mascarene islands, which are proportionably poor in birds. Of eight African genera, that is to say, such as are peculiar to the African continent, Madagascar, as far as known, possesses four, viz. *Scopus*, *Numida*, *Polyboroides*, and *Melierax*. The first of these, *Scopus umbretta*,

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has a very extensive geographical distribution ; Adanson observed it in Senegal, Bowdich on the Gambia, Boie and others at the Cape, Delegorgue at Port Natal, Tuckey at the Zaire, Denham and Clapperton in Central Africa, and Rüppell in Sennaar and Abyssinia ; it is said also to have been met with in southern Arabia. The genus *Numida* is extended over all Africa, though the habitat of certain species, such as *Numida vulturina*, is very restricted ; the species which occurs in Madagascar lives also in South Africa, and is altogether the most widely extended. The beautiful falconine genus *Polyboroides* has been observed in very distant localities of Africa ; it is not rare throughout S. Africa, occurs, according to Rüppell, in Schoa, and the museum at Bremen contains a fine female specimen from the Gambia. According to Andrew Smith, the Madagascar specimens of this bird were somewhat smaller, and altogether paler-coloured than the continental ones. Lastly, the singing falcon, *Melierax canorus*, has a rather less extended distribution ; its occurrence in Madagascar is asserted by Sganzin.

On the other hand, the following genera, which are truly African, and in part highly characteristic, are wanting in this island : *Gypogera*, *Helotarsus*, *Musophaga*, *Corythaix*, *Chizærhis*, *Pogonias*, *Trachyphonus*, *Barbatula*, *Lamprotornis* (*Juida*, Gr.), *Malaconotus*, *Drymoica*, *Colius* and *Buphaga*. The inexplicable anomaly of the absence of vultures and woodpeckers in the fauna of Australia and of the Papuan islands, recurs in a remarkable manner in Madagascar, where, hitherto at least, no bird of these two families has been observed ; for Sganzin's *Pic* and *Pic à tête bleue* are species of *Brachypteracias*. The genera *Francolinus*, *Pterocles*, *Ploceus*, *Cursorius*, *Otis*, *Chalcites*, *Laniarius*, &c., which are distributed in numerous species throughout Africa, present in Madagascar either but one representative, or none at all, which last is the case with the four genera last named ; the gaily-coloured *Lanius madagascariensis cæruleus* of Brisson, which Gray refers to *Laniarius*, is very isolated in its coloration and form of beak, and shares its peculiarity with other Madagascar birds, so that it cannot be placed with certainty in any of the modern genera. The family of the hornbills (*Bucerotidæ*) is exhibited in Madagascar by means of a dwarf form, *Euryceros Prevosti*, first described by Lesson.

The following species are met with both in Africa and Madagascar :—

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Polyboroides typicus, *Melierax canorus*, *Corvus albicollis*, *Zosterops madagascariensis*, *Treron australis*, *Numida mitrata*, *Numenius madagascariensis*, *Anastomus lamelligerus*, *Scopus umbretta*, *Rhynchæa capensis*, *Ardea bubulcus*, *Porphyrio madagascariensis*, *Nettapus auritus*, and *Sarkidiorn isregia*. Also *Merops*

viridis and *superciliosus* are stated by several zoologists, Rüppell for instance, to inhabit the African continent; but whether correctly, that is, whether continental specimens were recognized as identical after a close comparison with those of Madagascar, is somewhat questionable. The number of species which inhabit both Madagascar and the Mascarene islands, is, so far as we know, only small. As such may perhaps be mentioned, *Tinnunculus punctatus*, *Fregilupus capensis*, *Zosterops borbonicus*, *Saxicola sibylla*, *Muscipeta borbonica*, *Ploceus madagascariensis*, *Psittacula cana*, *Columba picturata*, *Alectrænas franciæ*, *Francolinus madagascariensis*, *Numenius madagascariensis*, *Platalea Telfairi*, and *Rallus Cuvieri*. Of birds more widely extended in the Old World, whose occurrence in Madagascar is asserted by single witnesses, but is not yet sufficiently demonstrated, there are, *Strix flammea*, *Cuculus canorus*, *Ardea alba* and *garzetta*, *Fulica chloropus* and *cristata*, *Phænicopterus antiquorum*, *Podiceps minor*, and *Larus ridibundus* (??).

The affinity assumed by I. Geoffroy St. Hilaire and others, between the Madagascar and the Indo-Australian fauna, is especially confirmed by the fact that the genus *Artamia* (*Artamus*) is represented in that island by several remarkably-coloured species; as well as by the common occurrence of certain species in India and Madagascar, provided always that the statements to that effect be established. We found *Strix manadensis* under that name in the Paris Museum, but with an attached label "*Madagasc. Bernier*" (1840). Whether *Ithaginis madagascariensis*, a bird widely diffused in India, really occurs in that island also, remains altogether undetermined. We may add also, that Gray includes the *Merula madagascariensis* of Brisson (we know not whether from his own observation) as a second species of Hodgson's genus *Saroglossa* [more properly *Psaroglossa*;—TRANSL.], whose type is the well-known *Lamprotornis spilopterus*, Vig., from the Himalaya. It is earnestly to be wished that future naturalist-travellers would pay especial attention to the great Struthious bird *Vouron-patra*, mentioned by Flacourt, the rediscovery of which, in connexion with the fact that Bourbon, Mauritius, and Rodriguez had each their own species of *Didus*, would be of the highest geographico-zoological interest. Flacourt's account bears no mark of the fabulous about it, and certainly deserves all possible attention.

The geographico-zoological results of our superficial knowledge of the birds of Madagascar may be summed up in the following propositions:—

1. The ornithological fauna of Madagascar is indeed rich in peculiar genera and species which do not occur elsewhere, yet

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1. The ornithological fauna of Madagascar is indeed rich in peculiar genera and species which do not occur elsewhere, yet

this is not true of the whole mass, as is the case with the Mammalia.

2. It has a tendency to exhibit the African model, but shows a greater conformity to the fauna of the Mascarene islands.

3. It bears clear and characteristic traces of an affinity with the Indo-Australian fauna. (Black parrots occur only in New Holland and New Guinea, besides Madagascar.)

4. The number of handsome and bright-coloured species, among the birds of Madagascar, is remarkably small, considering the tropical position of the island.

XLI.—*Description of a new British Limnæa.*

By JOSHUA ALDER, Esq.

[With a Plate.]

THE European freshwater mollusca of the pulmoniferous order are so few in number, and, for the most part, so well known and generally diffused, that it is only by a happy chance we meet with a new species to record. It gives me pleasure therefore to be able to add to the British list an undescribed *Limnæa* lately discovered by my friend Mr. Robert Burnett of Newcastle, in Loch Skene, Dumfries-shire.

Limnæa Burnetti. Pl. XI. fig. 1.

Shell ovate, gibbous, obtuse, of a bright yellowish horn-colour, rather glossy and semitransparent, delicately and pretty regularly striated. Spire involuted and placed obliquely: the first and second whorls are slightly sunk in the apex, the third rising a little above them so as to be visible in profile: the body-whorl is large, much-inflated, and occupies nearly the whole of the shell. Aperture large and ovate; the outer lip thin, generally very regularly arched, but sometimes a little constricted in the middle; rounded at the base, and not expanded at the margin; inner lip reflected on the columella and forming a subumbilicus: the columella is only very slightly twisted; and the body-whorl, which is more than usually rounded, projects a little into the aperture above. The spire is not visible from the under side. Length of the largest specimens three-quarters of an inch, breadth rather more than half an inch. The usual size is about one-third less.

Animal of the usual form of the genus, but a little broader than in *L. peregra*. It is dark olive-coloured, spotted with opaque-yellow. The cloak is nearly black, with a few paler spots.

From its involuted spire, small specimens of this species might

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